

EDUCATION

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| • Masters in CS , Carnegie Mellon University (CMU) | 4.13/4.33 | <i>Aug 2022 - Dec 2023</i> |
| • MBA , Indian Institute of Management Ahmedabad (IIMA) | 3.612/4.33 | <i>Aug 2020 - May 2022</i> |
| • Bachelors in CS , Indian Institute of Technology Kanpur (IITK) | 9.7/10 | <i>Aug 2014 - July 2018</i> |

EXPERIENCE

- **Salesforce**, Software Engineer Intern, San Francisco, USA *May 2023 - Aug 2023*
 - **Argo Workflows**: Improved scalability and stability of **SalesforceDB** (SDB) service by redesigning SDB deployments to Kubernetes in Argo Workflows. Designed a framework to transition other lifecycle management pipelines to Argo Workflows.
 - **Pipeline Improvement**: Simplified existing pipelines by removing unnecessary stages reducing end-to-end deployment time.
- **Tower Research Capital LLC**, Software Engineer, India *July 2018 - July 2020*
 - **PnL Infrastructure**: Redesigned the PnL infrastructure in Python to support a larger number of exchanges, including crypto markets. Improved the performance & resource needs of the system to achieve **3x reduction in time & 2x reduction in memory usage**. Added caching to reduce resource wastage & enable real-time PnL status monitoring.
 - **Strategy Framework**: Pioneered an easy-to-use strategy building framework to support dynamic deployment & modification of strategies during live trading using trader inputs in C++. Used the factory pattern to extend the reflection system for all strategy components. Achieved **within 80% performance** of the original optimized system.
 - **Cautious Times**: Revamped the cautious time framework to detect & monitor high volatility times during trading as a preprocessing step in Python. The new design provided **10% gain in performance & 20% improvement in accuracy** of results by pre-processing and caching all available data, & removing redundant entries and false positives.
 - **Responsibility**: Took ownership of the global PnL infrastructure (30+ exchanges), leading accuracy & performance projects. Overlooked market summary reconciliation by post-trade team, & maintained the historical PnL database.
- **Nutanix**, Member of Technical Staff Intern, India *May 2017 - July 2017*
 - **Kafka Benchmark**: Pioneered an automated config-based benchmarking framework to track CPU & memory metrics.
 - **Kafka Library**: Designed Python module to fully manage a running Kafka cluster. Further added support for reading messages through different modes using the confluent-kafka-python module or streaming messages using web sockets.

SELECTED PROJECTS

- **Flattening Laterals in DuckDB** | Prof. Andy Pavlo, CMU *Spring'23*
Added planning & flattening support for arbitrarily nested LATERAL joins to DuckDB, making it the first open-source system to support efficient execution of arbitrarily nested LATERALS & UDFs (with Apfel), substantially improving performance over the nested loop implementation found in other systems like PostgreSQL. Link to PR
- **C0 Compiler** | Compilers, CMU *Spring'23*
Designed multiple compilers to incrementally support features like branching, functions, & heap for the C0 language. Added various optimizations, including register allocation/coalescing, loop invariant code motion, dead code elimination, strength reduction, & tail optimization to achieve comparable performance to GCC at -O1 optimization level.
- **CloudFS** | Storage Systems, CMU *Fall'22*
Designed a distributed filesystem in FUSE that uses local disks & cloud for storage. Supported extensive snapshot features for backups. Optimized storage costs with deduplication & transfer costs with caching for S3-like cost model.
- **Distributed Systems** | CMU *Fall'22*
Implemented a consistent distributed replicated log with Raft protocol using RPCs to communicate between replicas in Go. Implemented a simpler variant of TCP & used it to build a fair & efficient distributed Bitcoin miner in Go.
- **NachOS** | Operating Systems, IITK *Fall'16*
Implemented system calls, process scheduling & memory management, replacement algorithms for an instructional OS.

SKILLS & RELEVANT COURSEWORK

- **Languages** C++, C, Python, Rust, Go, Shell Scripting
- **Courses** Adv. Databases, Storage Systems, Adv. Cloud Computing, Distributed Systems, Compilers, Databases (IITK), Computer Architecture, Networks (IITK), Operating System (IITK), Data Structure & Algorithms (IITK),

ACADEMIC & TECHINICAL ACHIEVEMENTS

- **IIMA**: Recipient of 1970 Batch Merit Industry scholarship & IIMA Merit Industry scholarship totalling \$3700 in 2022.
- **IITK**: Awarded Certificate of Merit for Academic Excellence (within **top 10%ile**) for two consecutive years, 2016 & 2017.
- **ACM-ICPC**: Ranked **30th/2400** in the Preliminary Qualifiers across India & **2nd** in the IITK institute in 2018.